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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/670,474

09/26/2003

Kook-yeol Yoo

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SUGHRUE MION, PLLC  
2100 PENNSYLVANIA AVENUE, N.W.  
SUITE 800  
WASHINGTON, DC 20037

EXAMINER

CZEKAJ, DAVID J

ART UNIT

PAPER NUMBER

2621

MAIL DATE

DELIVERY MODE

09/04/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/670,474	<b>Applicant(s)</b> YOO, KOOK-YEOL	
	<b>Examiner</b> DAVID CZEKAJ	<b>Art Unit</b> 2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 15 August 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 27-38 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 27-36 is/are rejected.
- 7) ☒ Claim(s) 37-38 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Response to Arguments***

Applicant's arguments with respect to the finality of the last action have been fully considered and are persuasive. The finality of the last office action has been withdrawn.

On pages 9-13, applicant argues that the AAPA fails to disclose the conversion of the affine motion parameters to a predetermined number of translational motion vectors. While the applicant's points are understood, the examiner respectfully disagrees. See for example the AAPA page 2, lines 8-20. There Yoo discloses performing affine motion estimation to obtain affine motion parameters. Yoo then uses these affine motion parameters to convert/determine the motion vector of each pixel. Hence, Yoo discloses converting the affine motion parameters to a number of translational motion vectors. Yoo further discloses on page 3, lines 4-13, page 4, lines 1-10, and page 5, lines 1-15, using the affine motion parameters in different ways to convert, or determine, the motion vectors. Therefore the rejection has been maintained.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 27, 28, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA Yoo (US 10/670,474) in view of Hibi et al. (6275532), (hereinafter referred to as “Hibi”).

Regarding claim 27, Yoo discloses “performing an affine motion estimation to obtain affine motion parameters” (Yoo: page 2, lines 8-11 of specification) and “converting the affine motion parameters to a predetermined number of translational motion vectors” (Yoo: page 2, line 19 – page 3, line 13 of specification). However, Yoo fails to disclose coding the difference as claimed. Hibi teaches that it is impractical to handle video information because the video generally contains a very large amount of information (Hibi: column 1, lines 20-25). To help alleviate this problem, Hibi discloses “coding the difference between the motion vectors of a current block and the motion vectors of a previous block” (Hibi: column 22, lines 40-50). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to take the apparatus disclosed by Yoo and add the coding taught by Hibi in order to help reduce the amount of data a system needs to process.

Regarding claim 28, note the examiners rejection for claim 27.

Regarding claim 30, note the examiners rejection for claim 27, and in addition, the decoder of the combination of Yoo and Hibi will perform the complimentary operations of the corresponding encoder.

2. Claims 29 and 31-36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoo (US 10/670,474) in view of Hibi et al. (6275532), (hereinafter referred to as "Hibi") in further view of Bober (6944227), (hereinafter referred to as "Bober").

Regarding claim 29, note the examiners rejection for claim 28, and in addition, claim 29 differs from claim 28 in that claim 29 further requires quantizing the vectors to fixed point numbers. Bober teaches that it is well known to quantize motion vectors to either full or sub-pel accuracy and differentially encode the result (Bober: column 1, lines 20-24). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to implement the quantization taught by Bober in order to send large amounts of data over limited bandwidth networks.

Regarding claim 31, Hibi discloses "an image being coded comprises a plurality of blocks, wherein the affine parameters are used to determine a motion of each pixel in a block among a plurality of blocks, wherein the motion varies for each pixel based on values of the parameters and a location of the pixel in the image and the motion for each pixel varies independent of motion of the other pixels in the block" (Hibi: column 19, line 55-column 20, line 20; column 22, lines 21-37; column 32, lines 37-59).

Regarding claim 32, Hibi discloses "each of the motion vectors specifies a motion of each block, wherein the number of vectors is equal to a number of blocks in the image" (Hibi: column 20, lines 8-20, wherein since the interpolation

is done pixel by pixel, the number of motion vectors will be equal to the number of blocks).

Regarding claims 33-36, note the examiners rejection for claims 31-32.

***Allowable Subject Matter***

Claims 37-38 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAVID CZEKAJ whose telephone number is (571)272-7327. The examiner can normally be reached on Mon-Thurs and every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mehrdad Dastouri can be reached on (571) 272-7418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2621

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Dave Czekaj/  
Primary Examiner, Art Unit 2621